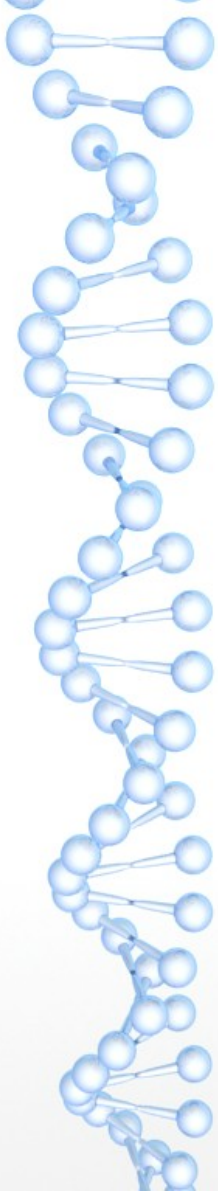
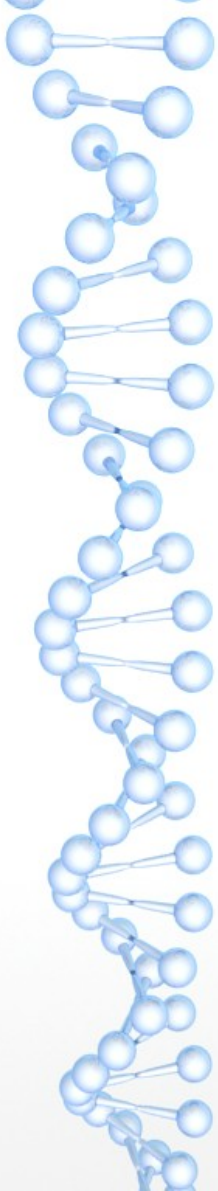


What if numbers could have negative digits?

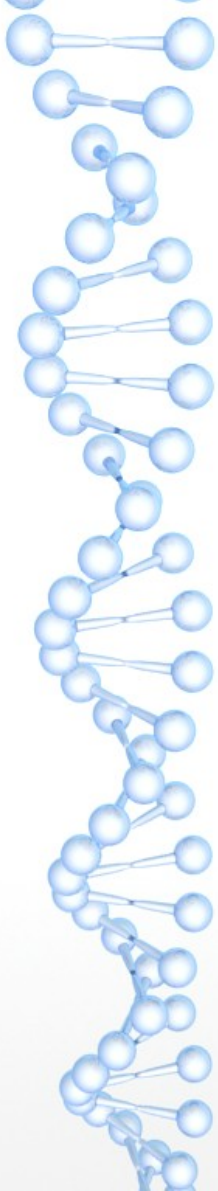
Smaller digits



19
+27
=??

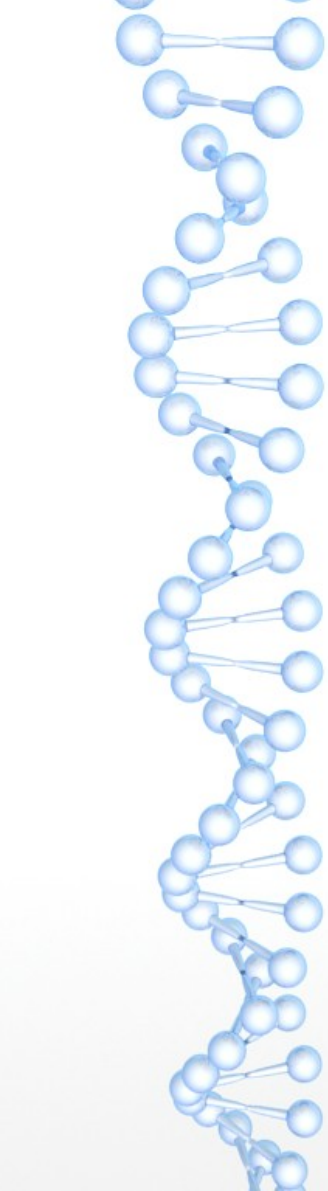
Smaller digits

$$\begin{array}{r} 19 \\ +27 \\ =?? \end{array} \qquad \begin{array}{r} 2\bar{1} \\ +3\bar{3} \\ = \end{array}$$



Smaller digits

19	$2\bar{1}$
+27	$+3\bar{3}$
=??	$=5\bar{4}$



Smaller digits

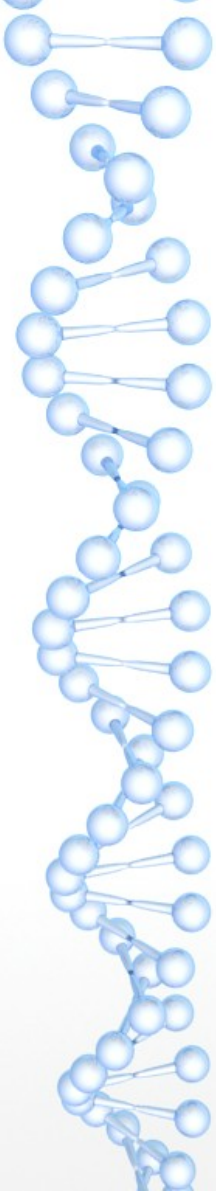
$$\begin{array}{r} 19 \\ +27 \\ =?? \end{array} \qquad \begin{array}{r} 2\bar{1} \\ +3\bar{3} \\ =5\bar{4} \\ =46 \end{array}$$

Multiplication

89

x73

=????



Multiplication

89

x73

=????

$1\overline{11}$

x$1\overline{3}3$

Multiplication

89

x73

=????

111

x133

= 3

Multiplication

89

x73

=????

111

x133

= 03

Multiplication

89

x73

=????

111

x133

= 503

Multiplication

89

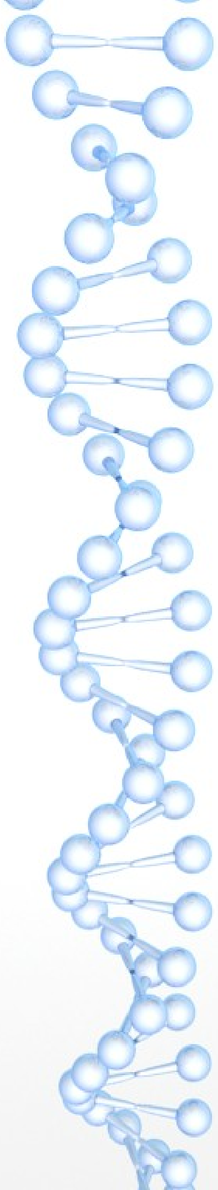
x73

=????

111

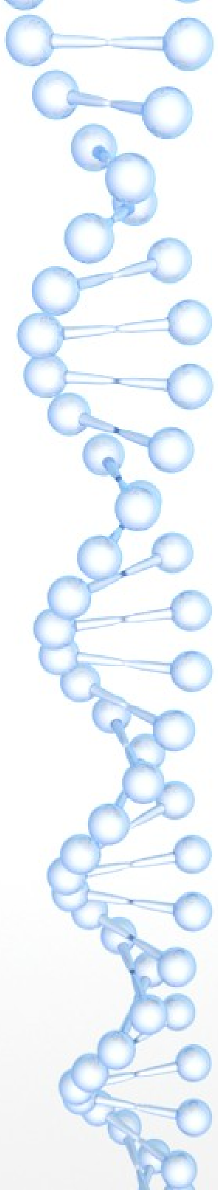
x133

= 4503



Multiplication

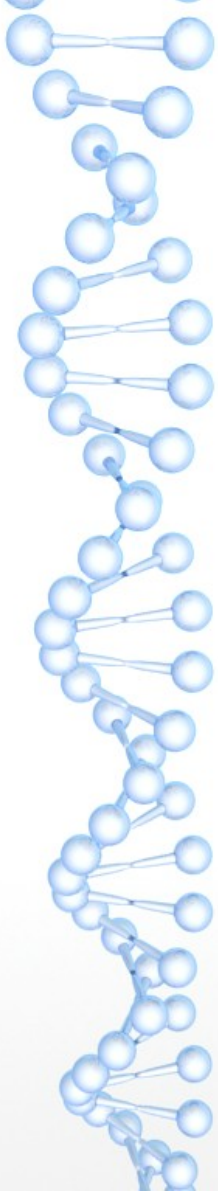
89	$1\overline{11}$
x73	x$1\bar{3}3$
=????	= $1\bar{4}50\bar{3}$



Multiplication

$$\begin{array}{r} 89 \\ \times 73 \\ = ???? \end{array}$$

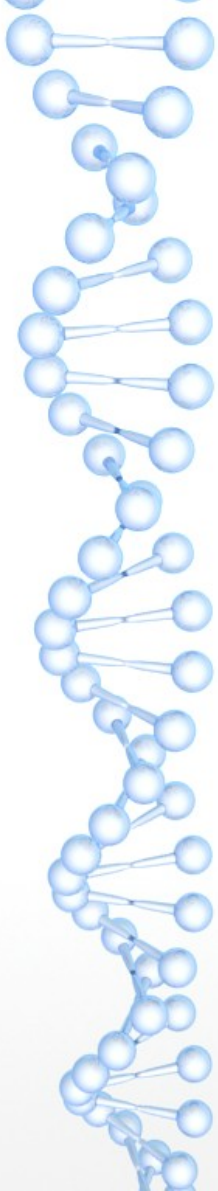
$$\begin{array}{r} 1\overline{1}\overline{1} \\ \times 1\overline{3}3 \\ = 1\overline{4}50\overline{3} \\ = 6497 \end{array}$$



Something more complicated

$\sqrt{1369}$

=??



Something more complicated

$\sqrt{1369}$

=??

$\sqrt{143\overline{1}}$

Something more complicated

√1369

=??

2

√1431

8)

= 4/

Something more complicated

$\sqrt{1369}$

=??

$$\begin{array}{r} \overline{21} \\ \sqrt{14\overline{31}} \\ 8) \\ = 4/\overline{3}. \end{array}$$

Something more complicated

$\sqrt{1369}$

$=??$

$$\begin{array}{r} 2\overline{10} \\ \sqrt{14\overline{31}.0} \\ 8) \\ = 4/\overline{3}.0 \end{array}$$

Something more complicated

$\sqrt{1369}$

$=??$

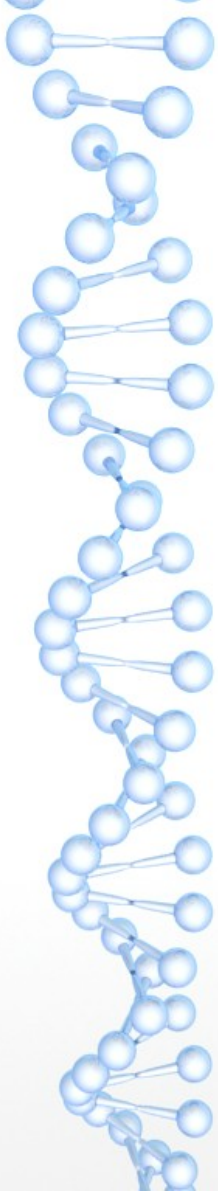
$$
\begin{array}{l}
\quad \overline{2}10 \\
\sqrt{14\overline{3}1.0} \\
8) \\
=\ 4/\overline{3}.0 \\
=\ \ 4\overline{3}
\end{array}
$$

Something more complicated

$\sqrt{1369}$

$=??$

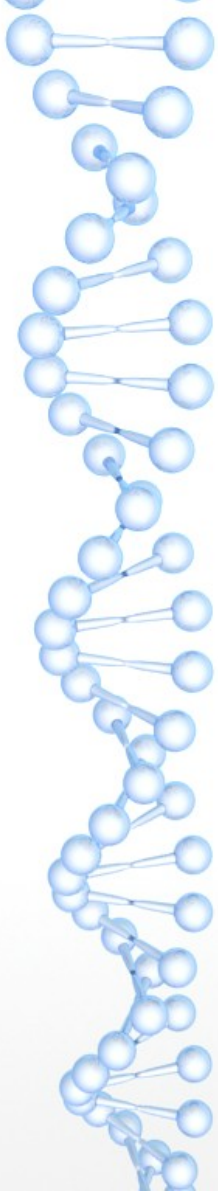
$$\begin{array}{r} \overline{2}10 \\ \sqrt{14\overline{3}\overline{1}.0} \\ 8) \\ = 4/\overline{3}.0 \\ = \ 4\overline{3} \ = 37 \end{array}$$



Let’s check

$\sqrt{1369} = 37$?

43^2



Let’s check

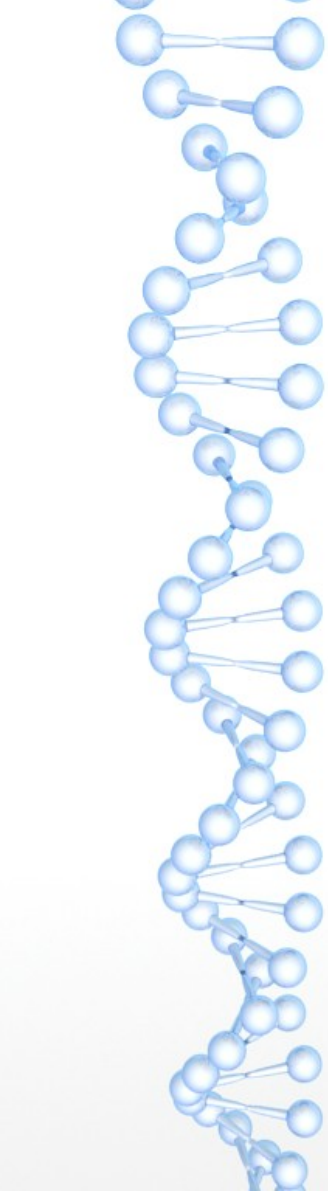
$\sqrt{1369}$ =37?

43^2 = 9

Let’s check

$\sqrt{1369} = 37?$

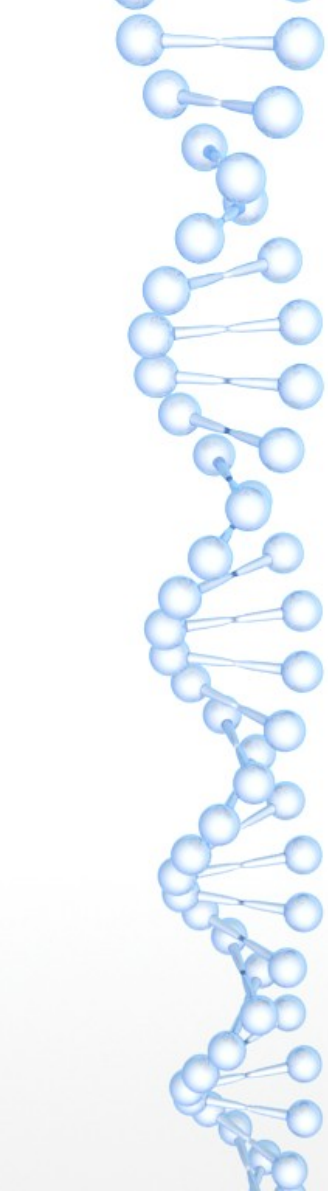
$43^2 = 49$



Let’s check

$\sqrt{1369} = 37?$

$43^2 = 1849$



Let’s check

$\sqrt{1369}$

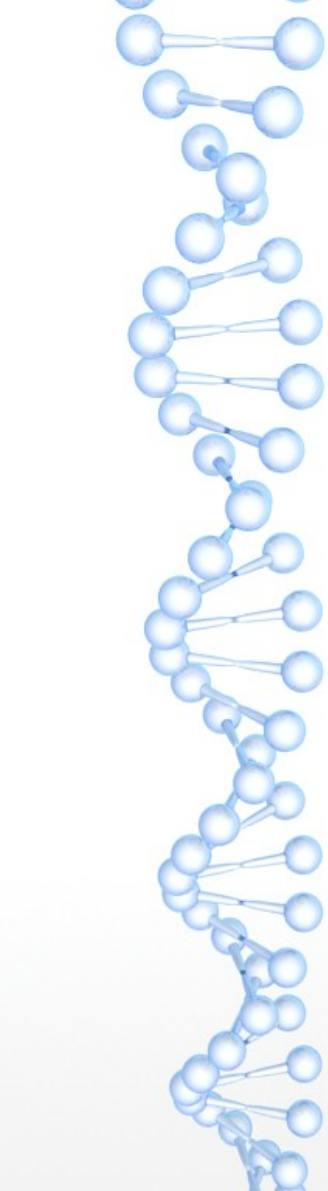
$=37$

43^2

$=1449$

2

$=1369$



Vedic Maths

- Negative digits are great
- Other interesting ways to do arithmetic
- Don’t believe the origin story